GDP multiplied **thirteenfold**, while population increased only slightly.

In 2015, more than 1/3 of global resource extraction and 45% of total resource extraction in the G20 took place in China.

Material footprint, climate change and particulate matter (PM) health impacts related to resource extraction and processing **tripled** and are now higher than G20 average.

Water stress grew by **50%**

China experienced a **strong relative decoupling** of both material use and impacts from national GDP.

Material intensity and environmental impact intensity (Impacts/GDP) significantly improved.
Non-metallic minerals like sand and gravel dominated domestic extraction and material footprint (higher than the G20 average), but played a comparably minor role for environmental impacts.

Resource extraction and especially material processing contributed to approximately 65% of total climate change impacts in China. This was due mostly to large build-up of infrastructure as an emerging economy.

In line with other G20 countries, water and land use-related biodiversity impacts were caused mainly by biomass production.

Outdoor PM related health impacts came mainly from household activities (e.g. heating and cooking) and industrial resource use (e.g. coal electricity).

More than one third of economic value added was created through resource extraction and processing in China. This is larger than the G20 average.

Resource extraction and processing provided 70% of all jobs in China, which were mainly low-income agriculture jobs.
In the past 15 years, build-up of infrastructure has led to major increases in climate change impacts from construction materials, particularly cement and steel.

China has become the world’s top steel and cement producer. It contributed to more than half of global greenhouse gas emissions emitted by these sectors in 2015.

Other important material sectors include the chemical industry and mining of coal and lignite, which have grown threefold in the last two decades to produce electricity for China’s growing economy.

Water stress impacts in China are mostly produced by agricultural activities due to irrigation for wheat, cereal, paddy rice and oil seed production.

Water stress impacts significantly increased between 1995 and 2015 due to the cultivation of oil seeds, wheat and cereals for meat production. It also increased due to the cultivation of vegetables, fruits, and nuts, and the production of iron and steel.

Water stress impacts are higher from a production perspective due to wheat exports.

Overall, biodiversity loss impacts in China remained below the G20 average.

Forestry and cattle farming are the main sources of land-use related biodiversity loss.

Impacts from the production of cereals and oil seeds increased between 1995 to 2015 from a consumption perspective, due to imports from regions with high rates of biodiversity loss.

Material footprint (MF): A nation’s MF fully accounts for material extraction in other countries used for local consumption in the nation of interest (consumption perspective)

Material intensity (MI): Indicates efficiency of material use (MI = DMC/GDP)

Material-related impacts: Impacts related to the extraction and processing of material resources (including the upstream supply chain, such as electricity generation and transport)

Net traded materials/impacts: Difference between material-related impacts from a production and consumption perspective. In the case of environmental impacts, a positive value means that the material-related impacts from exports are greater than the impacts from imports (and vice-versa: environmental impacts with negative values mean that the material-related impacts from imports are greater than the impacts from exports)

Production perspective: The production perspective allocates the use of natural resources or the impacts related to natural resource extraction and processing to the location where they physically occur
China is a net exporter of non-metallic minerals, which dominate material exports. However, the picture is different for other resource categories.

In 1995 more fossils and biomass were exported than imported. By 2015, this situation was reversed for biomass and evened for fossils.

Climate change impacts caused by metal exports were larger than climate change impacts caused by metal imports. This is due to the energy and water intensity of metal processing taking place in China (i.e. production of steel). Impacts of imported ores are relatively low.

After 2010, value added was generated by China’s domestic material production more than by its material consumption. This is mainly attributed to imports of fossils (mostly crude petroleum).

**Future trends and potential Decoupling**

Scenarios developed by the IRP forecast an increase of GDP for China by a factor of ~4 and for DE and DMC an increase lower than a factor of 2 by 2060. This means relative material decoupling will happen.

If ambitious resource efficiency policies are introduced, China could even see an absolute decoupling of material extraction after 2040.

Material productivity has largely improved in the last decades in China. The continuation of this positive trend could have a large effect globally on the decrease of environmental impacts.

Several types of environmental impacts have decoupled relatively from material extraction in China. Opportunities for further improvement exist, especially in the coal-based electricity sector, which is responsible for 23% of the supply chain climate impacts.

A large share of material-related environmental impacts was caused by the build-up of infrastructure. Material-efficient urban design and circular economy solutions could help lower these impacts.